

ALEC POKRANDT

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Education

Kent State University, Kent, OH, USA

Fall 2022 – Present

Bachelor of Science (Biotechnology)

GPA: 4.0/4.0

Technical Skills

Cell Culture-Adherent & Suspension: hiPSC Seeding, Passaging, Media Preparation and Feeding, Expansion, Harvesting, Cryopreservation, Thawing, Differentiation. Differentiated neuronal cells (SHSY5Ys) and cancer cell lines (MDA, A549, Ramos), Bacterial culture/media preparation and transformation

Engineering: Fusion360 CAD, 3D Printing

Functional Assays: Agilent sea horse assay, MTT assay, Tissue ATP assay

Nucleic Acid Based: DNA/RNA extraction (cell & tissue), *In vitro* transcription, RNA oxidation and immunoprecipitation, PCR/RT-qPCR, DNA/RNA Radio labelling, RNA dot blotting, Urea PAGE

Protein Based: Recombinant Protein expression and purification (Ni resin), SDS PAGE, Western blot, Immunocytochemistry/Immunohistochemistry

Instruments: Vi-Cell XR, QuantStudio3 and 12K, EPOCH Microplate Spectrophotometer, Spectramax Platereader, Confocal Microscope (FV1000), Fluorescence Microscope (EVOS M7000), E1-ClipTip, UV-Vis Spectrophotometer

Analysis: Microsoft Excel, ImageJ, Bio Render

Experience & Research

Trailhead Biosystems

June 2024 - Present

MSAT Intern

Beachwood, OH

- Mammalian Cell Culture Technician-Differentiation of hiPSCs into all 3 germ layers in plates, flasks, and 500mL bioreactors
- Molecular Biology Technician-Molecular characterization of cells for R&D of differentiation methods and QC
- Laboratory Equipment Service Technician-Diagnosing, repairing, calibrating, various equipment in the lab

Dr. Soumitra Basu Laboratory, Department of Chemistry and Biochemistry

Fall 2022 - Spring 2024

Undergraduate Research Volunteer

Kent, OH

- **Role of mRNA oxidation of mitochondrial electron transport chain subunits in Neurodegenerative diseases:** Conducted independent laboratory experiments to support graduate research. This project focused on studying the role of RNA oxidation in neurodegenerative diseases. We discovered that the selective mRNA oxidation of mitochondrial ETC sub units negatively regulate mitochondrial ETC complex activities and ATP synthesis in neuronal cells under oxidative stress. We also demonstrated the presence of extensive mitochondrial RNA oxidation in MS and PD postmortem brain samples and discovered that the oxidation of ETC subunit mRNAs dysregulate ETC complex functions
- Contributed to other projects with experimental preparations: Transcribing and purifying RNA for experiments, Radio labeling RNAs, Isolating and purifying T7 polymerase from E.coli
- Attending and presenting in weekly lab-group meetings
- Diagnosing and resolving laboratory equipment issues

JDS Mobile Medical

2019 - 2023

Manager & Field Engineer

Columbia Station, OH

- Managing a team responsible for industrial equipment refurbishment. Equipment included trommel screeners, tub & horizontal grinders, loaders, diesel engines and generators
- Installing and servicing mobile MRI and PET/CT systems
- Troubleshooting and repairing mechanical, electrical, and hydraulic systems; both on-site and in the field
- Operating heavy equipment

Residential Construction-Self employed

2017 - 2019

Project Manager & Laborer

Northeast Ohio

- Locating distressed homes and analyzing profitability of refurbishment, budgeting, submitting purchase offers
- Electrical, plumbing, carpentry, concrete, roofing, siding, etc.

Publications

1. Thulasi Mahendran, **Alec Pokrandt**, Brintha Croos, Sarita Kunde, and Soumitra Basu. "Mitochondrial RNA oxidation in neuronal cells impedes complex I activity in normal appearing cortex of Multiple Sclerosis brain." Manuscript in preparation, (2024)
2. Thulasi Mahendran, Brintha Croos, **Alec Pokrandt**, and Soumitra Basu. "Selective mRNA oxidation of ETC subunits dysregulate energy production in Parkinson's disease." Manuscript in preparation, (2024)

Certifications

- Certification in **Computational Antibody Engineering** from Schrödinger (antibody structure modeling, antigen interaction prediction, and property optimization)

Presentations

- **Annual Honors Week**, Department of Chemistry and Biochemistry, Kent State University, OH (April 2024), Poster presentation “**Oxidation of ETC subunit mRNAs dysregulate complex activities and ATP synthesis in Parkinson’s disease brain.**”
- **Ohio Academy of Science Annual Meeting**, Kent, OH (April 2024), Poster presentation “**Oxidation of ETC subunit mRNAs dysregulate complex activities and ATP synthesis in Parkinson’s disease brain.**”

Personal Attributes

- **Ambitious Curiosity**-Fascinated by biology and eager to develop and apply bio-engineering for scientific, therapeutic, agricultural, and industrial applications
- **Problem-solving and analytical skills**-At JDS I was challenged with mechanical, electrical and hydraulic faults. I mastered diagnosing faults in large complex hydraulic systems, generators, engines, 480 Volt ATSS, and wiring harnesses with 1000’s of connections. I’ve found these experiences to directly translate to problem solving in laboratory and academic settings.
- **Diligent**-Executed complex and extended Biochemical/Molecular/Tissue Culture protocols. I’ve used CAT ET to assemble a diesel engine with several thousand parts in which correct sequence, torque specifications, orientation of parts and engine timing were crucial.
- **Adaptable & Persistent**-Experienced and comfortable working in fast paced, dynamic, and high stakes environments
- **Collaborative**-Worked successfully on the MSAT team at Trailhead Biosystems, teams in Basu Lab, and JDS Mobile Medical as Team Lead.

References

1. **Dr. Soumitra Basu**, Department Chair & Professor, Department of Chemistry and Biochemistry, Texas State University, San Marcos, Texas. Email: **tcp79@txstate.edu** Phone: 330-672-3906
2. **Chris Halt**, President & COO, JDS Mobile Medical, Email: **chalt@jdsmobile.com** Phone: 330-672-2577